IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: Koji Tsuchida et al.

Appl. No.: 10/553,862 ART UNIT: 1794

Filed: October 21, 2005 Examiner: TAMRA L. DICUS

For: HEAT-SHRINKABLE TRANSLUCENT WHITE FILM, SHRINK LABEL AND CONTAINER WITH LABEL

DECLARATION UNDER 37 C.F.R. 1.132

Assistant Commissioner for Patents
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Sir:

I, Shinji BANNO, a citizen of Japan and residing at 4-3-27 Imazukita, Tsurumi-ku, Osaka, declare and state that:

I was completed master's course in engineering KANSAI UNIVERSITY.

From April, 2008 up till the present, I have been engaged in research and development of packaging film.

I am one of the researchers of the related packaging material and am familiar with the subject matter of the present invention.

I declare that the following experiments were performed by me.

Experiment

1. Date: September 10 to 18, 2009

2. Place: Technical Center, Fuji Seal, Inc.

3. Performed by: Banno Shinji, Technical Center, Fuji Seal, Inc.

4. Object

The purpose of the experiments is to clarify the difference between the film prepared according to the film of the present invention and the film produced by the method described in Freedman '782(US 5,186,782).

Specifically, (Experiment 1) the purpose of the experiments is i) to demonstrate through the experiment that the film which had been drawn and heat-set or the annealed as described in Freedman '782 does not show the same heat shrinkability as the film of the present invention and ii) to demonstrate that the Examiner's opinion "Because the film of Freedman '782 is prepared by the same material as the film of the present invention and is drawn by a similar method to the present invention, the film of Freedman '782 should show the heat shrinkability" is invalid.

Furthermore, (Experiment 2) the purpose of the experiments is to demonstrate that the opaque film with the titanium oxide according to Freedman '782 does not have the same light impervious property (transmission factor to light at wavelength band of 380 to 500 nm of 5% or less) as the film of the present invention.

5. Methods

(Experiment 1)

A polystyrene resin composition [(titanium dioxide)/(polystyrene resin) (weight ratio) = 5/95] for forming back and front layers was prepared by blending a styrene-conjugated diene block copolymer [a product of Denki Kagaku Kogyo Kabushiki Kaisha under the trade name of "431L"] with titanium dioxide (TiO_2). A polystyrene resin composition [(carbon black)/(polystyrene resin) (weight ratio) = 1/99] for forming a core layer was prepared by blending a styrene-conjugated diene block copolymer [a product of Denki Kagaku Kogyo Kabushiki Kaisha under the trade name of "431L"] with carbon black.

These resin compositions were fed to an extruder equipped with a T-die and were coextruded at a temperature of 220°C, the extrudate was cooled with a chill roll and was drawn 4 times in a widthwise direction at a temperature of 95°C to yield a long heat-shrinkable film. This film A has a three-layer configuration and has a thickness of 50 μm (ratio of thickness of layers: (front layer)/(core layer)/(back layer) = 4/3/4).

Similarly, These resin compositions were fed to an extruder equipped with a T-die and were coextruded at a temperature of 220°C, the extrudate was cooled with a chill roll and was drawn 4 times in a widthwise direction at a temperature of 95°C and

then subjected to heat-setting at 150°C for one second to yield a heat-set long heat-shrinkable film. This film B has a three-layer configuration and has a thickness of 50 μm (ratio of thickness of layers: (front layer)/(core layer)/(back layer) = 4/3/4).

These film A and B were subjected to blanking to make test piece (100mm in length direction X 100mm in cross direction), immersed in the water bath of 90°C for 10 seconds, and the length of the cross direction after the heat shrinkage of each film was measured and the heat shrinkability was derived from the formula below. The results are shown in Table 1.

Heat shrinkage (%) = (length of cross direction before heat shrinkage - length of cross direction after heat shrinkage) / length of cross direction before heat shrinkage X 100

(Experiment 2)

A polystyrene resin composition [(titanium dioxide)/(polystyrene resin) (weight ratio) = 20/80] for forming front layer, core layer and back layer was prepared by blending a styrene-conjugated diene block copolymer [a product of Denki Kagaku Kogyo Kabushiki Kaisha under the trade name of "431L"] with titanium dioxide (TiO_2).

These resin compositions were fed to an extruder equipped with a T-die and were coextruded at a temperature of 220°C, the

extrudate was cooled with a chill roll and was drawn 4 times in a widthwise direction at a temperature of 95°C to yield a long heat-shrinkable film. This film C has a three-layer configuration and has a thickness of 50 μm (ratio of thickness of layers: (front layer)/(core layer)/(back layer) = 4/3/4, each of front layer, core layer and back layer comprises 20% of TiO_2).

Furthermore, A polystyrene resin composition [(titanium dioxide)/(polystyrene resin) (weight ratio) = 30/70] for forming front layer, core layer and back layer was prepared by blending a styrene-conjugated diene block copolymer [a product of Denki Kagaku Kogyo Kabushiki Kaisha under the trade name of "431L"] with titanium dioxide (TiO_2).

These resin compositions were fed to an extruder equipped with a T-die and were coextruded at a temperature of 220°C, the extrudate was cooled with a chill roll and was drawn 4 times in a widthwise direction at a temperature of 95°C to yield a long heat-shrinkable film. This film D has a three-layer configuration and has a thickness of 50 μm (ratio of thickness of layers: (front layer)/(core layer)/(back layer) = 4/3/4, each of front layer, core layer and back layer comprises 30% of TiO_2).

The transmission factor to light of films C and D were measured using a spectrophotometer [a product of Shimadzu

Corporation under the trade name of "UV-3101PC"] The result are shown in Figure 1.

6. Results

(Experiment 1)

As shown in table 1, film A without heat setting showed the heat shrinkage of 54% while film B with heat setting showed the heat shrinkage of 0% (no shrinkage).

As described above, it was demonstrated that the film produced with heat-set process showed no heat shrinkage and the film produced without heat-set process showed heat-shrinkage nevertheless both of the film was made using the same material and drawing process.

Therefore, the Examiner's opinion that the film of Freedman '782 should show the heat shrinkability because of the use of the same material and drawing process as the present invention, is invalid.

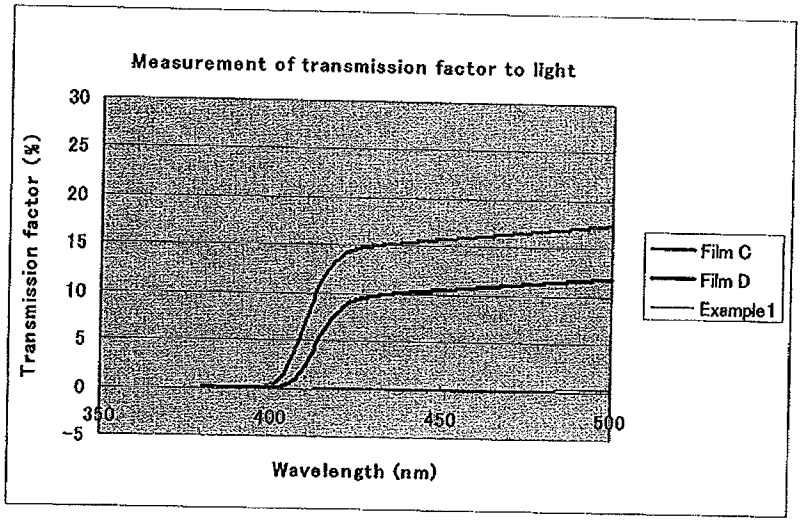
Material	Heat-set temp. (℃)	Heat-set time (min)	Heat shrinkage (%) (Widthwise direction)			
			No.1	No.2	No.3	Mean
Film A	-	-	54	53	55	54
Film B	150℃	1	0	0	0	0

(Experiment 2)

As shown in Figure 1, three layer structures of the film having white front layer, white center layer and white back

layer showed that the film has a transmission factor to light at wavelength of 380 to 500 nm of 5% or more despite of the inclusion of titanium oxide of 30%.

It is demonstrated that the opaque film described in Freedman '782 containing white pigments such as the titanium oxide and calcium carbonate does not have the same extent of the light impervious property as the film of the present invention.



I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the above-identified application or any patent issuing thereon.

This 25th day of September, 2009

阪野 真志

Shinji BANNO